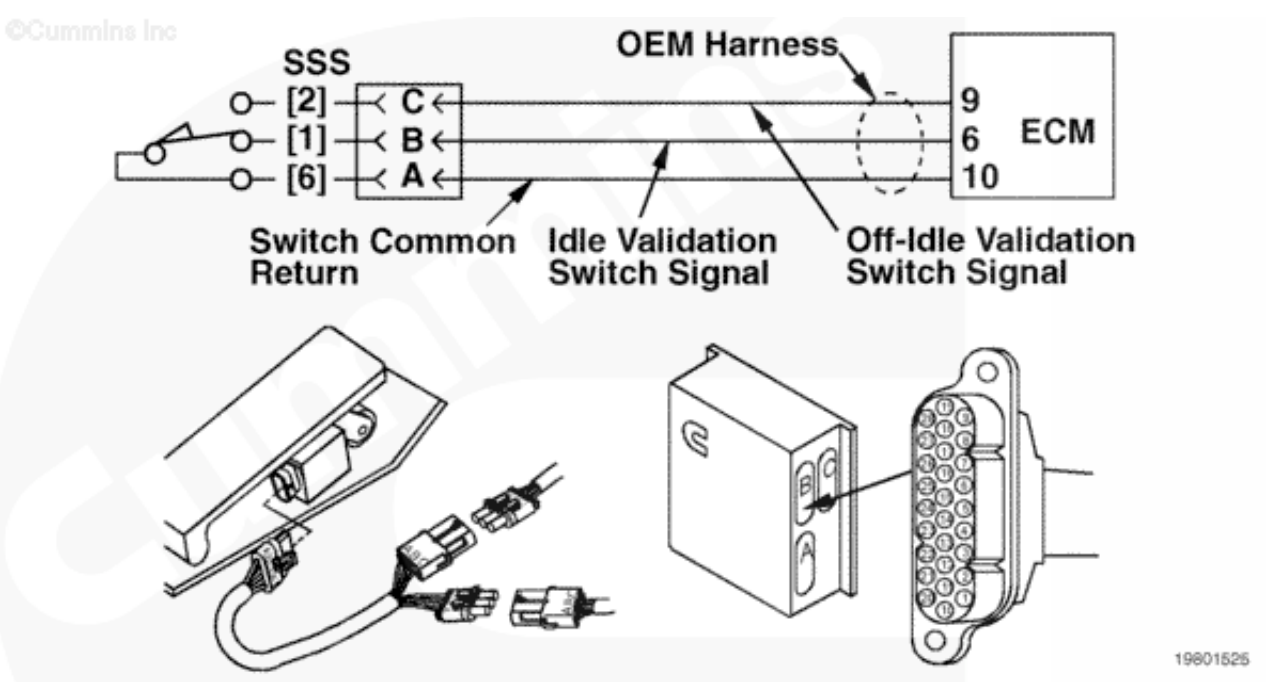
FAULT CODE 432 (SSS)
Accelerator Pedal Circuit

Overview

CODE	REASON	EFFECT
Fault Code: 432 PID: P091 SPN: 91 FMI: 13 LAMP: Red SRT: 00-612	No voltage detected at idle validation on-idle signal pin 6 of the OEM harness when voltage at accelerator position signal pin 11 of OEM harness indicates pedal is **not** at idle or no voltage detected at idle validation off-idle signal pin 9 of the OEM harness when voltage at accelerator position signal pin 11 of the OEM harness indicates pedal is at rest.	Engine will **only** idle.

Accelerator Pedal Circuit



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Circuit Description

The accelerator pedal assembly relays the accelerator percentage needed to the electronic control module (ECM).

Component Location

The accelerator position sensor is located on the accelerator pedal.

Shop Talk

Confirm that the idle validation switch (IVS) is properly calibrated. Refer to the manufacturer's procedures for adjustment information.

- Make sure there are no external circuits hooked into the accelerator position sensor circuit and that there are no signs of tampering in the circuit.
- If all the wiring and the sensor checks look good, replace the accelerator position sensor and the idle validation switch circuit wires, between the accelerator pedal and ECM, with new wires. Run the wires through or around the bulkhead without using the bulkhead connector. Test the truck with the test wires in place. If the fault clears, replace the OEM harness. Seal the openings in the bulkhead around the connector and the wires to prevent toxic and noxious fumes from seeping into the cab. Verify that the three accelerator position sensor circuit wires are twisted together. Check that the three idle validation switch circuit wires are twisted together.
- The ECM and accelerator pedal assembly **must** be electrically calibrated to each other for proper engine response. The ECM and accelerator pedal assembly **must** be calibrated when an accelerator pedal is initially installed, replaced, when an ECM is replaced, when a new calibration is downloaded to the ECM, and when the accelerator pedal wiring is disconnected while the vehicle keyswitch is “ON”.
- With keyswitch “ON” gradually push the accelerator to the floor and release. Depress and release the accelerator pedal three times. This procedure will recalibrate the ECM and accelerator pedal.
- Confirm with OEM that the throttle is within OEM specifications for TPS voltage or resistance at idle to off-idle transition.
- Depressing the throttle pedal while starting the engine is **not** necessary nor advised. Additional fueling is **not** possible until the engine reaches idle, and in older versions of software, depressing the throttle pedal could cause Fault Code 432 in some situations.

Cautions and Warnings

CAUTION

To avoid damaging a new ECM, all other active fault codes must be investigated prior to replacing the ECM.

CAUTION

To avoid pin and harness damage, use the following test leads when taking a measurement:
Part Number 3822758 - male Deutsch/AMP/Metri-Pack test lead

Part Number 3823995 - male Weather-Pack test lead
Part Number 3823996 - female Weather-Pack test lead
Part Number 3824892 - breakout cable.

CAUTION

To avoid pin and harness damage, use this test lead when taking a measurement:
Part Number 3824892 - breakout cable.

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Part Number 3823996 - female Weather-Pack test lead.

Troubleshooting Steps

STEPS		SPECIFICATIONS
STEP 1.	Check the accelerator pedal.	
	STEP 1A. Inspect the accelerator connector pins.	No damaged pins
	STEP 1B. Measure the idle resistance value.	Correct resistance value
	STEP 1C. Check percentage of accelerator pedal.	3 to 10 percent
STEP 2.	Check the OEM harness.	
	STEP 2A. Inspect the OEM harness, bulkhead connector, and ECM connector pins.	No damaged pins
	STEP 2B. Check for an open circuit.	Less than 10 ohms
	STEP 2C. Check for a short circuit to ground.	More than 100k ohms
	STEP 2D. Check for a short circuit from pin-to-pin.	More than 100k ohms
STEP 3.	Check the ECM.	
	STEP 3A. Check the voltage supply.	4.75 to 5.25 VDC
	STEP 3B. Measure the accelerator position signal voltage.	Less than one (1) VDC
STEP 4.	Clear the fault code.	
	STEP 4A. Disable the fault code.	Fault Code 432 inactive
	STEP 4B. Clear the inactive fault codes.	All faults cleared

Guided Step 1 - Check the accelerator pedal.

Guided Step 1A - Inspect the accelerator connector pins.

Conditions

- Turn keyswitch “OFF”.
- Disconnect the accelerator from the OEM harness.
- Flush and clean the connector pins using electronic contact cleaner, Part Number 3824510.

Action

- bent or broken pins
- pushed back or expanded pins
- corroded pins
- moisture in or on the connector
- missing or damaged seals
- dirt or debris in or on the connector pins.

OK	NOT OK
No damaged pins	Repair or replace the accelerator pedal assembly. Refer to the OEM Troubleshooting and Repair Manual.
Go to 1B	Go to 4A

Guided Step 1B - Measure the idle resistance value.

CAUTION

To avoid pin and harness damage, use this test lead when taking a measurement:
Part Number 3824892 - breakout cable.

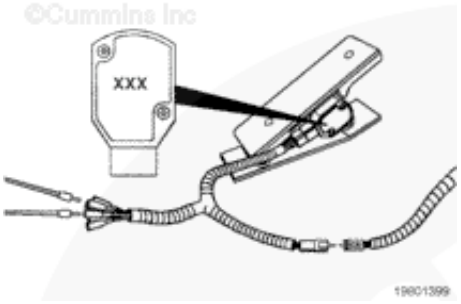
Conditions

- Turn keyswitch “OFF”.
- Install the breakout cable, Part Number 3824892, to the SSS.
- Do **not** connect the breakout cable to the OEM harness.

Action

- With the accelerator pedal released (on-idle), measure the resistance from pin 3 (APS signal) to pin 4 (APS return) on the breakout cable.

Note: Resistance value can be the same as the Idle Resistance Value stamped on the SSS cover, ±20 ohms.



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OK	NOT OK
Correct resistance value	Replace the SSS. Refer to the OEM Troubleshooting and Repair Manual.
Go to 2A	**Go to 4A**

Guided Step 1C - Check percentage of accelerator pedal.

Conditions

- Disconnect the accelerator position sensor at the accelerator pedal.
- Turn keyswitch “ON”.

Action

- Refer to Procedure 019-086 for method

to check the pedal.	
OK	**NOT OK**
3 to 10 percent	Does **not** meet specifications. Replace accelerator pedal assembly. Refer to OEM manufacturer for procedure.
Go to 2A	**Go to 4A**

Guided Step 2 - Check the OEM harness.

Guided Step 2A - Inspect the OEM harness, bulkhead connector, and ECM connector pins.

Conditions • Turn keyswitch "OFF". • Disconnect the OEM harness connector from the ECM. • Flush and clean the connectors using electronic contact cleaner, Part Number 3824510. **Action** • bent or broken pins • pushed back or expanded pins • corroded pins • moisture in or on the connector • missing or damaged seals • dirt or debris in or on the connector pins.	
OK	**NOT OK**

No damaged pins	Repair the damaged pins. Repair or replace the OEM harness or ECM, whichever has the damaged pins. • Flush the dirt, debris, or moisture from the connector pins using electronic contact cleaner, Part Number 3824510. Refer to Procedure 019-203 in the Troubleshooting and Repair Manual, Industrial CELECT™ Plus System Bulletin 3666130. • Repair the OEM harness. Refer to Procedure 019-203 in the Troubleshooting and Repair Manual, Industrial CELECT™ Plus System Bulletin 3666130. • Replace the OEM harness. Refer to Procedure 019-071 in the Troubleshooting and Repair Manual, Industrial CELECT™ Plus System Bulletin 3666130. • Replace the ECM. Refer to Procedure 019-031 in the Troubleshooting and Repair Manual, Industrial CELECT™ Plus System Bulletin 3666130. • Replace the o-ring on the 28-pin connector if it is damaged or missing. Refer to Procedure 019-203 in the Troubleshooting and Repair Manual, Industrial CELECT™ Plus System Bulletin 3666130.
Go to 2B	**Go to 4A**

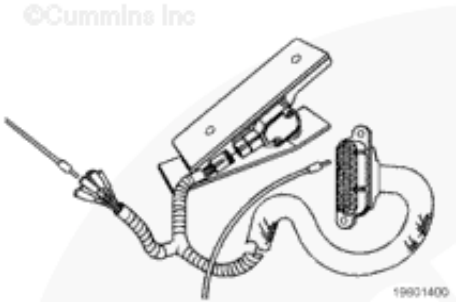
Guided Step 2B - Check for an open circuit in the OEM harness.

CAUTION

To avoid pin and harness damage, use the following test leads when taking a measurement:
Part Number 3822758 - male Deutsch/AMP/Metri-Pack test lead
Part Number 3823995 - male Weather-Pack test lead
Part Number 3824892 - breakout cable.

Conditions

- Turn keyswitch "OFF".
- Disconnect the OEM harness connector from the ECM.
- Disconnect the OEM harness from the accelerator position sensor.



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Action

- Measure the resistance from pin 18 of the OEM harness connector to pin 5 of the breakout cable.
- Measure the resistance from pin 11 of the OEM harness connector to pin 3 of the breakout cable.
- Measure the resistance from pin 19 of the OEM harness connector to pin 1 of the breakout cable.

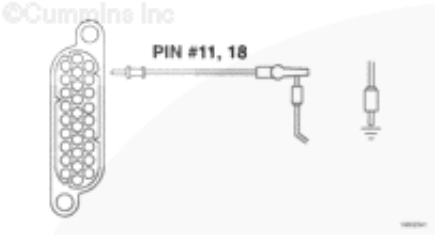
Note: Install breakout cable, Part Number 3824892, for SSS accelerator pedals.

OK	NOT OK
Less than 10 ohms	Replace the OEM harness. Refer to Procedure 019-071 in the Troubleshooting and Repair Manual, Industrial CELECT™ Plus System Bulletin 3666130.
Go to 2C	**Go to 4A**

Guided Step 2C - Check for a short circuit to ground.

⚠ CAUTION ⚠

To avoid pin and harness damage, use the following test lead when taking a measurement:
Part Number 3822758 - male Deutsch/AMP/Metri-Pack test lead.

Conditions • Turn keyswitch "OFF". • Disconnect the OEM harness to the accelerator position sensor. • Disconnect the OEM harness connector from ECM. **Action** • Measure the resistance from pin 11 in the OEM harness connector to engine block ground. • Measure the resistance from pin 18 in the OEM harness connector to engine block ground.	 SMALL I MEDIUM I LARGE
OK	NOT OK
More than 100k ohms	Replace the OEM harness. Refer to Procedure 019-071 in the Troubleshooting and Repair Manual, Industrial CELECT™ Plus System Bulletin 3666130.
Go to 2D	**Go to 4A**

Guided Step 2D - Check for a short circuit from pin-to-pin.

⚠ CAUTION ⚠

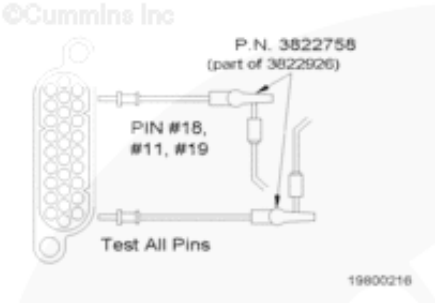
To avoid pin and harness damage, use the following test leads when taking a measurement:
Part Number 3822758 - male Deustch/AMP/Metri-Pack test lead.

Conditions

- Turn keyswitch "OFF".
- Disconnect the OEM harness from the accelerator position sensor.
- Disconnect the OEM harness connector from the ECM.
- Set all switches in cab to “OFF” or “NEUTRAL” position - open service brake switch, AC pressure switch, and clutch switch, or unplug them.
- Diagnostic switch **not** in diagnostic mode.

Action

- Measure the resistance from pin 18 in the OEM harness to all other pins in the connector.
- Measure the resistance from pin 11 in the OEM harness to all other pins in the connector.
- Measure the resistance from pin 19 in the OEM harness to all other pins in the connector.



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OK	NOT OK
More than 100k ohms	Replace the OEM harness. Refer to Procedure 019-071 in the Troubleshooting and Repair Manual, Industrial CELECT™ Plus System Bulletin 3666130.
Go to 3A	**Go to 4A**

Guided Step 3 - Check the ECM.

Guided Step 3A - Check the voltage supply.

CAUTION

To avoid damaging a new ECM, all other active fault codes must be investigated prior to replacing the ECM.

CAUTION

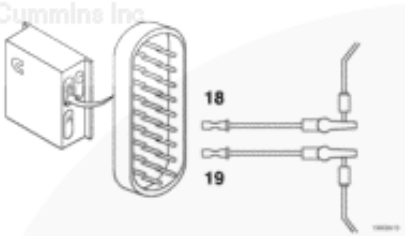
To avoid pin and harness damage, use the following test lead when taking a measurement:
Part Number 3823996 - female Weather-Pack test lead.

Conditions

- Disconnect the OEM harness connector from the ECM.
- Turn keyswitch “ON”.

Action

- Measure the voltage from pin 18 to pin 19 of the ECM's OEM port.



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OK	NOT OK
4.75 to 5.25 VDC	Replace the ECM. Refer to Procedure 019-031 in the Troubleshooting and Repair Manual, Industrial CELECT™ Plus System Bulletin 3666130.
Go to 3B	Go to 4A

Guided Step 3B - Measure the accelerator position signal voltage.

CAUTION

To avoid damaging a new ECM, all other active fault codes must be investigated prior to replacing the ECM.

CAUTION

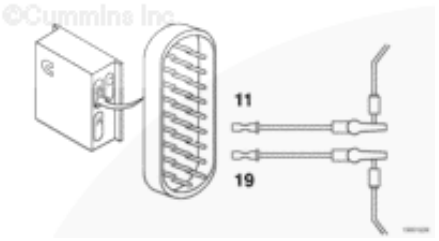
To avoid pin and harness damage, use the following test lead when taking a measurement:
Part Number 3823996 - female Weather-Pack test lead.

Conditions

- Disconnect the OEM harness connector from the ECM.
- Turn keyswitch “ON”.

Action

- Measure the voltage from pin 11 to pin 19 of the ECM OEM port.



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OK	NOT OK
Less than one (1) VDC	Replace the ECM. Refer to Procedure 019-031 in the Troubleshooting and Repair Manual, Industrial CELECT™ Plus System Bulletin 3666130.
Go to 4A	**Go to 4A**

Guided Step 4 - Clear the fault code.

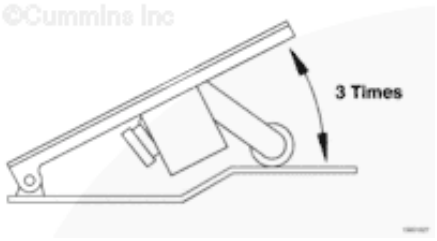
Guided Step 4A - Disable the fault code.

Conditions

- Turn keyswitch “ON”.
- Connect all the components.

Action

- Depress the accelerator pedal to the full fuel position.
- Release the accelerator pedal.
- Repeat this procedure twice.
- Read the active fault codes using Compulink™, Part Number 3823549, Echek™, Part Number 3824437, or INSITE™, Part Number 3824638.



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OK	NOT OK
Fault Code 432 inactive	Fault Code 432 active.
Go to 4B	Go to 1A

Guided Step 4B - Clear the inactive fault codes.

Conditions

- Connect all the components.

Action

• Erase the inactive fault codes using Compulink™, Part Number 3823549, Echek™, Part Number 3824437, or INSITE™, Part Number 3824638.	
OK	**NOT OK**
All faults cleared	Troubleshoot any remaining active fault codes.
Repair complete	**Appropriate troubleshooting chart**

Last Modified: 03-Nov-2003